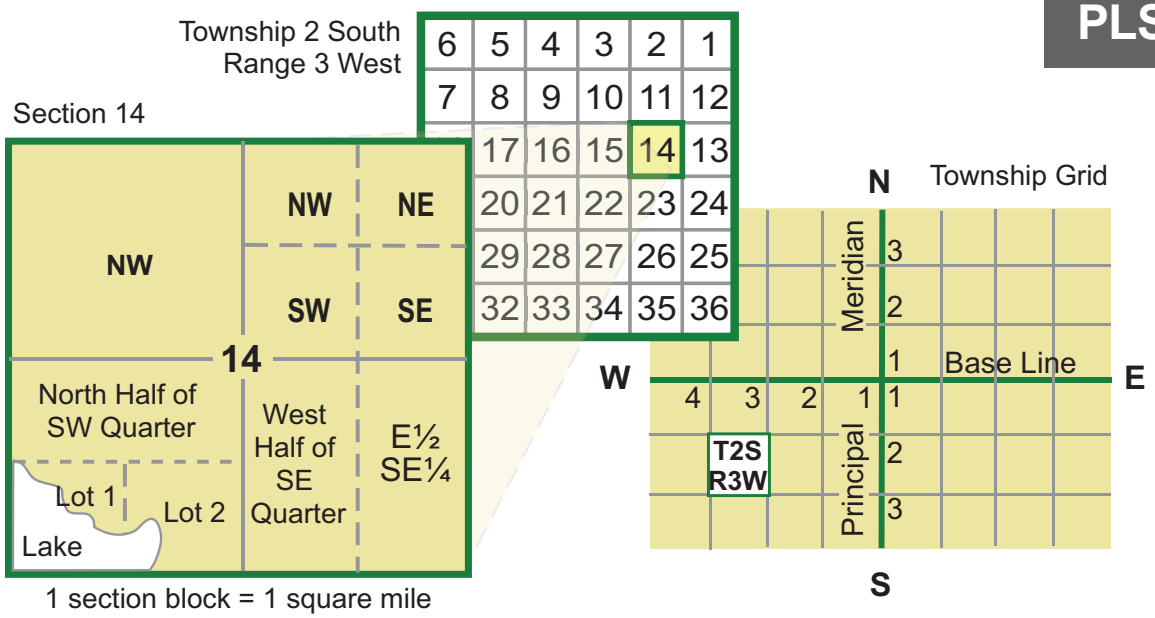
Public Land Survey System

PLSS



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2 Changes to the Land
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Public Land Survey System (PLSS)

The first settlers in the Ohio Valley were squatters—people who did not wait for government approval before settling. To mark off the land, squatters and settlers marked trees, planted a crop of corn, and built a cabin. Settlers called these three changes “tomahawk improvement.”

Settlers also measured and marked their land by a system called metes and bounds. They would select natural features of the land, like boulders, large trees, or streams, as the boundary of their land. This resulted in descriptions of boundaries like “at a sugar tree and beech near Mr. Coleman’s fence,” “two buckeyes and beech on the bank of the Ohio river,” and “to a buckeye, hackberry, and ash opposite Mrs. Moore’s House ….”

The Land Act of 1785 created a system of measuring and marking land ownership that is still in use today. This system, called the Public Land Survey System, divided land into squares, called townships: each square was six miles on a side. The townships were divided into one-mile square areas called “sections” (640 acres). Early surveyors determined property lines using compasses and other instruments. They used natural features to mark property lines and drew the locations on their maps. Settlers used the natural features and maps to locate their new land. The PLSS helped decrease confusion about ownership and made it easier for the government to sell land. As more people moved to the Ohio River Valley, they consumed more natural resources.

Putting up Fences

After land had been measured, marked, and claimed, settlers usually built wooden fences. They got the wood from trees cut down on their property. The fences divided the land, creating boundaries.

Fences came in different shapes and sizes. “Post-and-rail” fences were made of vertical posts connected by horizontal rails, also of wood. Other settlers built fences called “zigzag,” “snake-rail,” or “Virginia” fences. Settlers built these fences by stacking pieces of wood on top of each other in a “Z” formation. These fences required a lot of wood to build, but trees in the Ohio River Valley were plentiful.

Clearing Land

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Growing Crops

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Clearing Land

Before a farmer could plant crops, he had to clear the land of trees either by cutting them down or by girdling, which meant removing a ring of bark from the tree trunk and then waiting for the tree to die. An average adult male could clear five or six acres a year this way. Eventually, settlers cleared thousands of acres of land for farms.

During early settlement of the Ohio River Valley, trees were abundant. Settlers did not always make careful use of them. The settlers would harvest the cleared wood to build houses and fences. Some would sell excess wood to artisans like coopers, tanners, or soap makers. Settlers cleared and in some cases burned trees that were in the way of planting more crops.

Settlers did not see a need to conserve trees. Their actions led to deforestation, clearing an area of forest or trees. Before settlement, trees covered over 90% of the state of Ohio. By the late 1800s, only 20% of the land had trees. This deforestation led to a number of problems for the Ohio Valley. It took away the habitat of deer, passenger pigeons, and other wildlife. Deforestation also increased soil erosion and runoff, leading to the increased chance of floods during heavy rains or dried-up streambeds during droughts.

Growing Crops

After clearing their land, farmers planted crops. Many of the crops they planted were native trees and plants. Over time, the rich farms in the Ohio River Valley became a source of food for many consumers. By 1849, Ohio produced more corn that any state in the nation.

Farmers often would plant only one crop, a practice called monoculture. For example, the settlers planted fields with only corn, rather than a mix of corn, beans, and squash like American Indians. Planting corn by itself removed nutrients from the soil. When the soil ran out of nutrients, farmers had to clear more forests and plant on new land. Some settlers used fertilizers like cow manure to put nutrients back into the soil. Fertilizing took a great deal of time and labor. Ash from burned wood was also used as fertilizer, but this required large numbers of trees.

Monoculture also led to unwelcome pests and plant diseases. Passenger pigeons, crows, squirrels, and other animals found more food, but farmers saw their crops eaten by wildlife. Single crop fields were easy targets and breeding grounds for insects, like the Hessian fly. This fly would eat up the corn, wheat, and rye that farmers wanted to sell at market. Wheat and rye, the most valuable grains for market, were also the most vulnerable to a plant disease called the "blast," or black stem rust. The blast could destroy crops in very little time. Laws were passed to try to eliminate the pest, but farmers always had to be on the lookout for this highly destructive disease.

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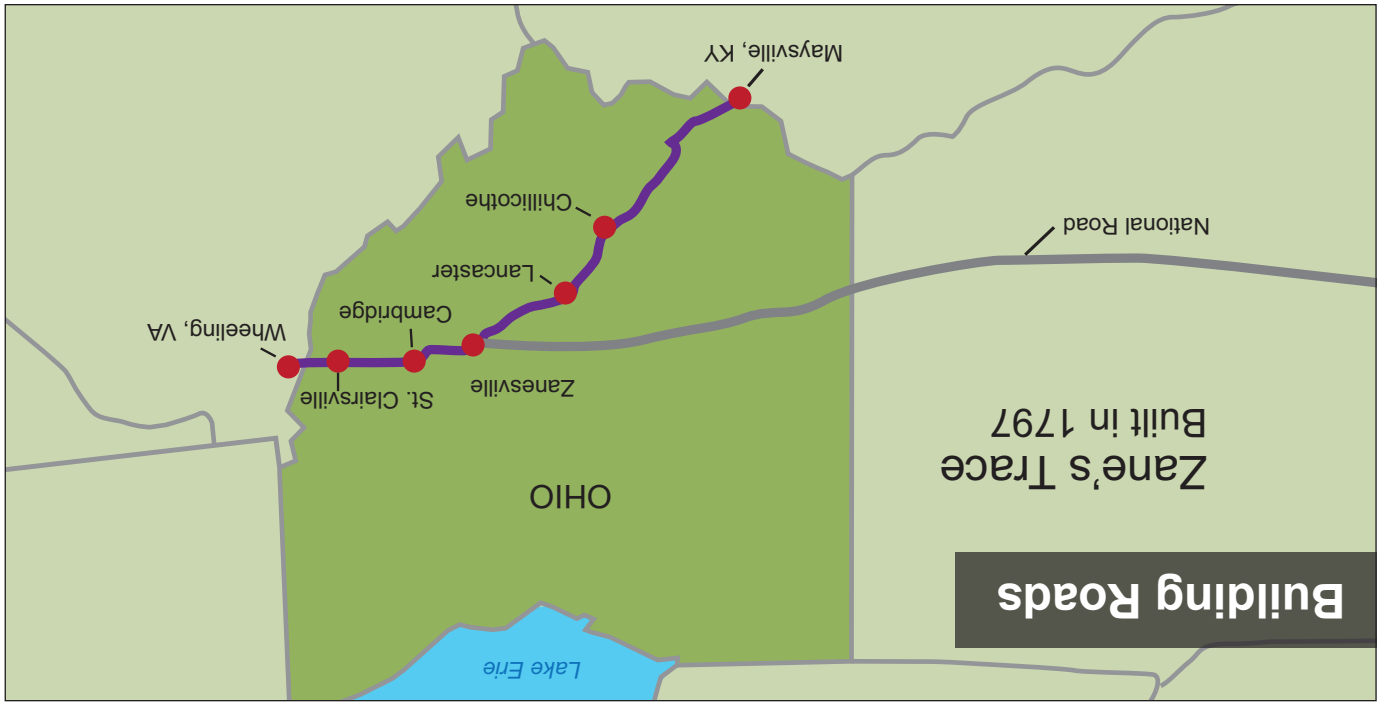


Building Towns

When settlers moved to the Ohio River Valley, few of them wanted to live in the wilderness alone. In fact, they quickly established towns. For example, the Ohio Company of Associates organized Marietta, the first official settlement in the Ohio River Valley, in 1788. They made these rules to regulate settlement:

- The settler to furnish lands for highways when needed.
- To build a dwelling-house within five years, of the size of 24 by 18 feet; a chimney of stone or brick.
- To put out not less than 50 apple trees, and 20 peach trees, within three years.
- To clear and put into meadow or pasture 15 acres, and into tillage not less than 5 acres, within five years.

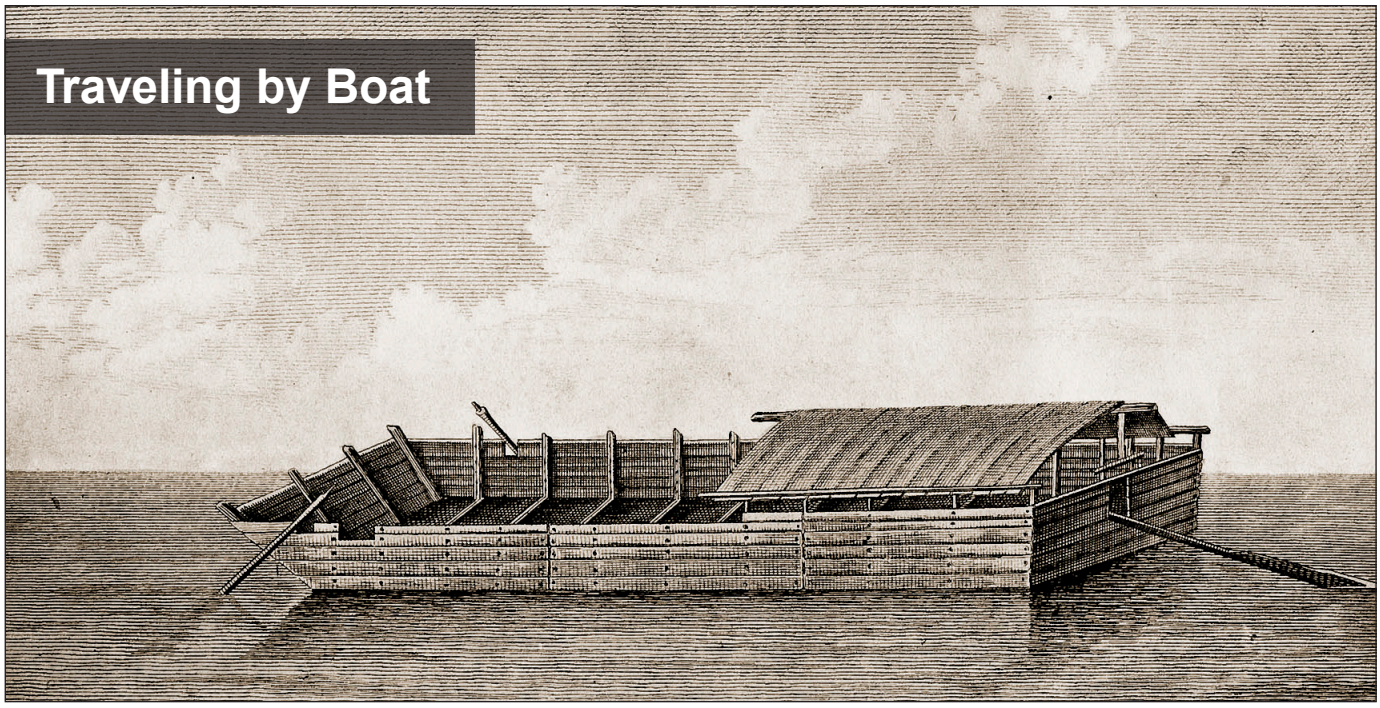
Other towns such as Belpre, Cincinnati, Louisville, and Zanesville soon followed Marietta in the Ohio River Valley.

Some towns grew around forts built to provide protection from American Indians. The forts and towns provided farmers with services as well as marketplaces, which encouraged farmers to produce surplus crops.

Building Roads

Roads were just as important to settlers as towns. Zanesville was named after Ebenezer Zane, who built Ohio's first road in 1797. This road was called "Zane's Trace." It connected Wheeling, Virginia, to present-day Maysville, Kentucky. Other towns along the way included Zanesville and Chillicothe.

To build his road, Ebenezer Zane asked Congress for land, saying, "The public as well as individuals would derive great advantage from the opening of the road through the [Northwest Territory] from Wheeling [Virginia] to Scioto River." The public—the Ohio Valley settlers and the people who bought their goods—did "derive great advantage" from the road. Zane's Trace was so popular that the National Road, approved by President Jefferson in 1806, later replaced it. Roads made it easier to move people and goods in and out of the Ohio Valley.



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Traveling by Boat

Water was the fastest way for settlers to move into and throughout the Ohio Valley. Many settlers came to the Ohio Valley on flat-bottomed “Kentucky boats” that left from Pittsburgh, at the beginning of the Ohio River. These boats were up to 100 feet long and 25 feet wide. Another type of river transport was a keelboat, which was smaller (80 feet long by 9 feet wide) but also faster. Both types of boats were made of wood, taken first from the riverbanks and then from the surrounding forests, contributing to deforestation.

As settlements grew larger, so did the boats traveling on the Ohio and other rivers. In 1801, a merchant from Marietta named B. J. Gilman bought a boat that could haul four hundred tons of goods. “The timbers of this vessel,” remembered one early settler, “were wholly made from the wood of the black walnut, which grew with great luxuriance in the rich bottoms of the Muskingum.”

Later, even more trees would be harvested as as a greater number of steamboats were put on the river. The steamboats relied on burning wood to heat the water and power their steam engines.

Constructing Mills

Settlers needed different types of mills to process the goods they used and sold. They used mills to grind corn or wheat and mills that powered saws to cut wood. Moving water channeled from rivers powered the mills. Mills were so important to settlers that towns offered free land to attract millers. In Marietta, the Ohio Company of Associates offered land “for twenty years to any one who would build a mill near the mouth of the Muskingum [River].” However, Marietta’s first mill was actually built on a boat that was chained to the shore and floated on the river. “It could grind from twenty-five to fifty bushels of grain in twenty-four hours,” wrote one of Marietta’s earliest residents. Later, people built more permanent mills on land next to the river. Mills became more complex. Bigger mills needed dams to store enough water to power their machinery. Such dams and machinery made it difficult for fish to pass by safely, and the byproducts from the mills, especially the sawdust from sawmills, polluted the water.

Constructing Canals

Traveling on the Ohio River and other streams was not easy. Areas of rough water and waterfalls could damage or destroy boats. Many settlers wanted to make canals to avoid these obstacles. Canals are artificial rivers. Ohio Valley settlers worked to construct canals throughout the state.

A visitor to Zanesville in 1818 reported, “In 1814, a company was incorporated… to cut a canal round the falls of the Muskingum at this place, for the improvement of the navigation, and to enable the company to use the waters of the river for… manufacturing purposes. A dam has already been built across the river, and the canal is almost completed.” Canals improved life for settlers, but, like milldams, they also had a negative influence on the habitat of fish.